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tumor formation in plants may be wrong because they failed to recognize the polar disposition to callus formation. He thinks the studies on tumor formation in plants will finally throw much light on cancer development.—WM. CROCKER.

Effect of illuminating gas on plants.—WEHMER¹⁰ has studied the effect of passing continuous streams of illuminating gas through the soil bearing potted herbaceous as well as 3-7-year-old woody plants. There was a great difference in the amount of injury, according to the stage of development. In the spring the trees were entirely killed in a relatively short time. This is in general the sort of reaction given by the actively growing herbaceous forms at all times. In late summer and early fall the injury is less marked and is shown mainly by leaf fall, while in the dormant period of winter the trees are very resistant. In the cress the embryo in the resting seed and the seedling stage proved very sensitive. Cuttings stood in gas-impregnated water showed, with few exceptions (*Ilex*), seasonal variations in sensitiveness similar to the plants rooted in soils. In spite of this the author thinks that injury to parts above the soil is in part a secondary result of root injury. The injury is due to toxic conditions of the gas and not to mere displacement of oxygen by the gas, as SORAUER has suggested. The toxic constituents increase or decrease with the conditions that lead to an increase or a decrease in the odor-producing materials. A later paper on the toxic constituents is promised. The author seems to have overlooked most of the literature on the effect of illuminating gas on plants.—WM. CROCKER.

Aeration systems of leaves.—NEGER¹¹ has earlier spoken of 2 types of leaves on the basis of the nature of their intercellular systems, heterobaric and homobaric. In a recent article he compares a heterobaric leaf to a house with thousands of rooms lacking communicating doors, and a homobaric leaf to a similar house with communicating doors present and all open. In the first type the intercellular system is divided into many small isolated regions by the smaller veins, with the resulting possibility of different air pressure existing in each; while in the second the whole intercellular system of the leaf is connected and therefore the same pressure exists throughout. Most plants with flat leaves have heterobaric leaves, and the size of the individual chambers varies considerably. In various species of *Quercus* they run from 1/840 to 1/1400 sq. cm., and in *Syringa vulgaris* from 1/8 to 1/10 sq. cm. In the same species shade leaves have larger chambers than sun leaves. The following trees and shrubs have homobaric leaves: *Evonymus japonica*, *Ilex aquifolium*,

¹⁰ WEHMER, C., Leuchtgaswirkung auf Pflanzen. 4. Die Wirkung des Gases auf das Wurzelsystem von Holz-pflanzen; Ursache der Gaswirkung. Ber. Deutsch. Bot. Gesells. 36:140-144. 1918.

¹¹ NEGER, F. W., Die Wegsamkeit der Laubblätter für Gaze. Festschrift zum ERNST STAHL. pp. 152-161. Jena. 1918.